

Remarks

Claims 1, 3-15 and 17-115 are presently pending in the application.

Claims 1 and 15 have been amended. Claims 116 and 117 have been added. Support for the amendments and additions can be found on pages 13-15 of the instant application.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1, 3-4, 7-15, 17-18, 21-29, 32-33, 58-64 and 89-95, under 35 U.S.C. 102(b) as being anticipated by Khare et al. (U.S. 5,726,117).

Khare discloses a composition comprising “a zinc component, a colloidal oxide component, and a metal oxide component” (*see* Khare, col. 1, lines 60-63). The metal oxide of the colloidal oxide can be alumina, silica, and manganese oxide (*see* Khare, col. 2, lines 29-35). The metal oxide component of the composition can be a metal aluminate (*see* Khare, col. 2, lines 45-46). The composition can also include a Group VIII metal oxide promoter (*see* Khare, col. 3, lines 36-27).

Applicants submit that at least a portion of the promoter in the inventive composition being present as a reduced valence promoter constitutes a patentable improvement over Khare.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1, 3-15, 17-29, 32-33, 58-64 and 89-95 under 35 U.S.C. 102(b) as being anticipated by Moskovitz et al. (U.S. 5,948,726).

Moskovitz discloses a catalyst comprising colloidal alumina and one or more oxide particles of MnO₂ and NiO, among others (*see* Moskovitz, col. 13, lines

27-31). Moskowitz also discloses compounds containing manganese oxide (*see* Moskowitz, Table I). However, Moskowitz does not disclose any of these manganese-containing compounds containing a silicon-containing material or a promoter in a substantially reduced valence state. Moskowitz does not disclose or suggest, and Applicants have not found, a promoter wherein at least a portion of the promoter is present as a reduced-valence promoter or a zero-valence promoter.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claim 1, 3-4, 7-15, 17-18, 21-23, 27-29, 32-33, 58-64, and 89-95 under 35 U.S.C. 102(b) as being anticipated by Thakur et al. (U.S. 5,134,108).

Thakur discloses a catalyst “comprising a major amount of the oxides of a first metal selected from the group of copper and zinc, a second metal selected from chromium, molybdenum, tungsten and vanadium, and optionally, a minor amount of the oxide of a promoter metal selected from the group consisting of manganese, barium, zinc, nickel, cobalt, cadmium, iron and any combination thereof . . .” (*see* Thakur, col. 3, lines 59-66). Thakur also discloses that “. . . the metals may be present in different valence states.” (*see* Thakur, col.. 4, lines 18-20).

The instant application claims that at least a portion of the promoter is present as a zero valence promoter (*see* Claim 1 of the instant application). Thakur merely discloses that it is possible to have metals present in different valence states, the reference does not disclose or suggest that at least a portion of the promoter must be present as a reduced valence promoter or a zero-valence promoter. Nor does Thakur disclose that its composition has a promoter present in an amount, which will

effect the removal of sulfur from a hydrocarbon stream when contacted with the composition under desulfurization conditions. Thakur discloses catalysts useful in hydrogenation reactions (*see* Thakur, col. 1, lines 16-17).

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1, 3-15, 17-33, 58-64, and 89-95 under 35 U.S.C. 102(b), as being anticipated by Schlaefer et al. (U.S. 4,078,004).

Schlaefer discloses cobalt-molybdate and iron-molybdate based catalysts containing expanded, crushed perlite (*see* Schlaefer, col. 1, lines 58-63). The perlite can contain silicon dioxide, alumina, and a small amount of manganese oxide (*see* col. 2, lines 53-60). Schlaefer does not disclose a promoter wherein at least a portion of which is present as a reduced valence promoter. Schlaefer also does not disclose a promoter present in an amount, which will effect the removal of sulfur from a hydrocarbon stream when contacted with its catalysts under desulfurization conditions. Schlaefer's catalysts are used for oxidation of aldehydes or olefins (*see* Schlaefer, col. 1, lines 11-12).

Response to Response to Arguments

The Examiner states “. . . the cited prior art does not disclose promoters limited having an ionic charge.” (*see* Final Office Action, page 5, 7th paragraph). Yet promoter metals at least a portion of which must be in a zero valence state are not specifically disclosed in any of the references. The Examiner is respectfully referred to MPEP, Section 2131. This section addresses anticipation. It is important that "The identical invention must be shown in complete detail as contained in the . . . claim" *Richardson v. Suzuki Motor Co.*, 9 USPQ 2d 1913, 1920 (*Fed. Cir. 1989*). The references cited do not meet this requirement, since they do not detail metals in zero valence states. Therefore, the instant claims are not anticipated.

Additional Response to Arguments

Claims 1 and 15 have been amended to state that the composition is reduced with a suitable reducing agent under suitable conditions so that at least a portion of the promoter is present as a zero valence promoter.

The Examiner states "in chemistry, molecules and atoms having no charge and a stable, zero valence, are generally unlabeled." (*See* Final Office Action, pp. 5-6).

In the Khare reference, the sorbents were prepared, formed into extrudates, and then dried and calcined. They are then contacted with hydrogen sulfide diluted with gases such as carbon dioxide and nitrogen (*see* Khare, col. 5, lines 25-67 and col. 6, lines 1-24). While acknowledging that the Khare reference is a significant contribution to the art, Applicants state that reducing a composition with a suitable reducing agent under suitable conditions is a patentable improvement over Khare.

The examples in the Moskovitz reference explain the production of various adsorbent and catalytic binder systems. They were tested for TCE removal. Some of the adsorbents were also tested for hydrogen sulfide removal (*see*, generally, Moskovitz, Examples 1-4). Moskovitz does not disclose, and Applicants have not found, an identical composition undergoing reduction as in the instant application.

In the Thakur examples, catalysts are prepared and are then dried and calcined. They are then used in hydrogenation reactions of various compounds (*see* ,

generally, Thakur, Examples 1-6). Thakur does not disclose, and Applicants have not found, an identical composition undergoing reduction as in the instant application.

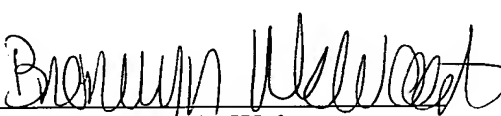
The Schlaefer reference discloses the preparation of various catalysts which are then used in a process for acrolein production (*see*, generally Schlaefer, Examples 1-11). Schlaefer does not disclose, and Applicants have not found, an identical composition undergoing reduction as in the instant application.

None of the above references disclose, and Applicants have not found, a composition as claimed in the instant claims undergoing a reduction step of any kind. Therefore, the claims in the instant application are a patentable improvement over all four of these references.

In view of the foregoing remarks and amendments, claims, 1, 3-15, and 17-115 are believed to be in condition for allowance. Therefore, early allowance of these claims is respectfully requested.

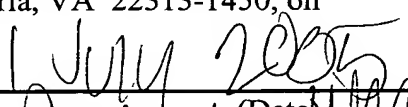
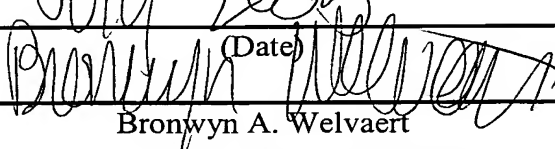
Respectfully submitted,

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